THE SIGNIFICANCE OF FAILING VISION

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fore treatment, but who noted visual disturbances after six tryparsamide injections. The visual fields were markedly contracted. Central vision was 20/30. Two more injections were given followed by rapid progress to complete blindness. It is difficult to decide in some cases whether the disease or the treatment is responsible for the continued progression to blindness. However, the dangers of tryparsamide therapy warrant perimetric studies during its use. Contracted visual fields should be an indication for cessation of the drug, at least temporarily.

THE SIGNIFICANCE OF FAILING VISION.*

BY

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Every object in our range of vision produces some degree of retinal stimulation in the form of images. Most of these we see, others are not remembered, as the eye only observes what the mind and imagination are gifted to see. What is our ability to see these objects, or what is normal vision? Which variations are pathological and what constitutes blindness?

We have accepted as a standard the Snellin unit as a true measure in the vast majority, but many have a visual acuteness of 20/40 or less and may still be considered as normal. This tends to give the wrong impression of the proportional value of vision and does not measure the usefulness of the eye.

The various states, corporations, and insurance companies have fixed different standards as incapaciting one for work, using the measure as referred to the usefulness or efficiency obtained. The United States Veterans Bureau, in its rating for compensation, considers less than 10/200 in each eye as total disability, less than 10/200 in one and 20/40 in the other as 30 per cent, 20/200 in each eye as 50 per cent, and 20/40 in each eye as no handicap.

We have another test of visual capacity in the use of light. The feeblest light capable of producing sensation is called the light minimum. This is disturbed in conditions which alter the circulation in the choroid capillaries; rods and cones suffer color blindness for blue. The smallest increase of brilliancy that can be perceived between one of two lights is called the light difference. Increase of light difference denotes a lesion of the superficial layers of the retina, and is noted in toxic amblyopia or involvement of the nerve. One is able to detect very early simple glaucoma and the Argyll Robertson pupil before the onset of tabes, but no change can be noted in opacities of the media.

Lamb has tabulated the various causes of blindness in Missouri as compared with those in the city of St. Louis. Of 5,552 cases in the state as a whole, trachoma comess first with a percentage of 25.5 per cent, cataract 19.7 per cent, optic atrophy 11.5 per cent, glaucoma 8.3 per cent, trauma 6.1 per cent, uveitis 5.2 per cent, unable to make diagnosis 8.9 per cent. In St. Louis, in 635 patients, optic atrophy is first with 23.1 per cent, glaucoma 15.8 per cent, uveitis 10.1 per cent, corneal opacities 9.1 per cent, cataract 8.2 per cent, trachoma 3.7 per cent, unable to make diagnosis 0.3 per cent.

Which is more tragic, the optometrist changing glasses frequently in vain efforts to improve the vision in a case of chronic glaucoma, or the internist prescribing argyrol and yellow oxide to the same patient who has a coexisting high blood pressure? The latter may be correct in his assumption as to the basic factor involved, not as to improvement expected, but the vital and original cause of both may be identical, the one producing changes in the finer secretory, vascular and excretory structures of the eye, even in the sclea itself, similar to those within the arterial system.

Who can best shoulder the responsibility, while the vision of one eye is becoming completely and permanently lost without the knowledge of the patient or internist, until some incident seriously affects the other eye?

It is much more important than they realize, as with early treatment much can be done. It is almost as important as failure to recognize a beginning cancer. The belief now is that glaucoma never develops within a perfectly normal body, some glandular, toxic, or defective eliminative factor being attributed as the primary cause.

Distant vision in early cataract is frequently lessened months before that for reading is much impaired. Here one of the earliest signs is the presence of small vascular or oil-like globules in the lens capsule. Persons after 60 years of age, who complain of failing vision and seek stronger reading glasses, usually have some organic trouble. The hyperope frequently says he cannot do without his glasses and his vision must be failing. The truth is that the ciliary muscle has become hypertrophied, and after using glasses and removing the added work the hypertrophy disappears as in all other muscles. In some there may be a gradual loss of vision in one or both eyes for a long period of time unnoticed, while in others, particularly the nervous type of individual may complain of the slightest changes in the ability to see. This latter type comes with the statement that the eyes are weak; she

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cannot see well and, above all, the light is painful. She usually has a dozen pairs of glasses from as many doctors, tinted in various shades and colors. In this type, changing of the glasses is of no benefit, and improvement of the mental and physical condition only will give her relief.

Uveitis, a frequent cause of failure of vision is many times difficult to explain, if syphilis and focal infection can be ruled out as etiologic factors. The patient comes with a history of repeated negative Wassermann tests and clear reports from most excellent specialists, internists, otolaryngologists, urologists and dentists, as to the presence of focal infection. Uveitis of the more or less chronic type is accompanied by a steadily increasing disturbance of vision and is often neglected until partial blindness forces the issue. I recently observed such a case, in which all vision was lost, except large objects. After two weeks of negative investigations and treatment with no benefit, the condition promptly cleared up with five large doses of gonococcus vaccine. In later life, uveitis is one of the principal causes of detachment of the retina and a serious complication in cataract operations. Since we have no way to prove total removal of the causative factor, the eye is in constant jeopardy. Sir Arnold Lawson states that in examining recruits for active service in the British Army, it is not advisable to accept any man whose defective sight in both eyes is due to old inflammatory diseases of the uveal tract, no matter how quiet the eye condition or how long the disease has been stationary, as old inflammatory mischief is likely to recrudesce under conditions inimical to general health.

Neuritis and neuroretinitis are often manifested by other symptoms preceding the failure of vision. Many of these are referable to posterior nasal sinusitis, in which cases the vision may become foggy and progressively worse. Formerly a great many of these patients were operated upon on the slightest provocation. The leading otolaryngologists were earnest in their plea for early and thorough exenteration of the affected sinuses. Some, notedly White of Boston, contended that the size of the optic canal was responsible to a large extent for involvement of the nerve. He depended upon the roentgen examination and advised early operation in those cases in which the canal of the optic nerve was 4 mm. in size. In a later paper, he has become much more conservative. Others contended that it was only necessary to have a deflected nasal septum with blocking of the middle turbinate, as an indication for operation. Few can truthfully say that the sphenoid and ethmoid are involved. Probably none can say that they are normal. The nerve may be in actual contact with the diseased sinus and there may be direct extension of the infection to perineural and interstitial tissue.

Toxins which reach the nerve by way of the blood stream are probably all extrasinal in origin, and always affect the optic nerve anterior to the chiasm. Many marvelous recoveries are reported following operations in these cases. Many have occurred in my experience, in which edema of the nerve head and retina have promptly disappeared with a return of vision to normal, but I have yet to see a well-defined ethmoid-sphenoiditis cured, and I have seen many patients who have been operated on, damning the doctor who did it, and usually he had performed an excellent operation. Who knows but that attention to the turbinate and septum with local treatment would not have achieved the same result? The characteristic earlier findings in loss of vision due to posterior sinus infection may be detected by tests of the visual fields. Here may be found an enlargement of the blind spot, a central scotoma, probably some contraction of red and green, and some tenderness on pressure of the globe. All posterior sinus cases should be referred to the ophthalmologist for repeated examinations of the visual fields.

There may be an early transitory loss of vision in papillitis, perhaps weeks or months before attention is directed to the eyes. These cases are frequently seen first by the neurologist, or in routine examination, and if unrecognized lead to permanent loss of vision.

Transient attacks of visual disturbances, flashes of light and black specks often occur before other evidence of vascular changes, in the arteriosclerotic type, due to spasm in the arterial walls. This is followed with degeneration of the retinal elements and failure of vision, first of the light sense and color disturbances, then of objects. A large proportion of the failures of vision in the pre-senile and senile is due to these influences.

Vascular degenerations are more dangerous than the presence of hemorrhages. The latter are usually readily absorbed, the former progressive. Hemorrhages in the inner layer of the retina are flame-shaped, the patient being unaware of it unless it affects the macula, while those in the outer layers may result in a wide blurring of the field. In arteriosclerotic retinitis there may be no sign of rupture of the vessel or origin of the hemorrhage and only one eye may be

affected, while in the renal type the lesions are always bilateral, although changes in one eye may be unnoticed. The retinal hemorrhages are often of relative slight importance compared to the grave general physical condition. In some of these cases, the internist and clinical pathologist report negative findings, and I wonder, as they often do of me, if they have been thorough in their investigations.

Loss of vision due to lesions in or near the chiasm is usually due to pituitary enlargement. The first sign is central scotoma, first on one side, and the diagnosis depends on this symptom coupled with the *x*-ray findings.

The visual field tests are characteristic, but with great variations. There may be irregular hemianopsias which terminate in bitemporal blindness or there may be only the altitudinal type. Often the macula escapes, due to bilateral representation in each occipital lobe. True binasal hemianopsia is produced only by a lesion on each temporal side of the tract. Posterior to the chiasm, a lesion that affects the tract on one side only results in changes on the corresponding half of each retina. The upper, lower and middle zone of one hemisphere is connected with a similar zone of the retina. Lesions in the cuneus without motor, sensory or mental signs, cause a quadrant hemianopsia. In lesions of the optic tract, the fixation point does not escape.

Certain toxins and poisons seem to have a selected affinity for the optic nerve and the macula bundle in particular. Among these, tobacco is often given as the cause, and promises to be more frequently an etiologic factor due to an enormous increase in its use by the youth of both sexes. Also, we are seeing more and more cases of toxic amblyopia resulting from the drinking of impure alcohol.

The macula may lose only part of its function in defects of color and color perception, with normal vision otherwise, there being probably separate centers and visual paths for color. Beautiful colors are frequently seen with the blind eye, due to an irritation of the visual center, which illusion creates the false hope that the vision of the eye can be restored.

It is wonderful, indeed, to consider how many objects our visual apparatus is fitted to take in at once and, successively, in an instant; and at the same time to relay to the brain an estimation of their position, figure, and color. Other impressions are received by the mind by way of the eye, of which we are unconscious, which affect our behavior and emotion. The eye protects against our dangers, guides our steps, and lets in all the visible objects whose beauty and variety instruct and delight. "He that is stricken blind cannot forget the precious treasure of his eyesight lost."

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REFERENCES.

1. Ferree, C. E., and Rand, G.: An Acuity Apparatus with Attachments for Testing the Light and Color Sense and for Color Mixing, Arch. Ophth. 55:245.
2. Lamb, H. D.: Causes of Blindness in Missouri and St. Louis, Arch. Ophth. (September) 1927.
3. Lawson, Sir Arnold: War Blindness at St. Dunstans, Oxford Publication.
4. Ramsey, A. Maitland: The Eye in General Medicine, Wm. Wood & Co.
5. Traquiar, H. M.: Special Vulnerability of Macular Fibres and Sparing of the Macula, Brit. J. Ophth. p. 53 (February) 1925.
6. White, L. E.: Anatomical Studies of Optic Canal in Cases of Optic Nerve Involvement, Ann. Otol. Rhin. & Laryng. 1925.

ABSTRACT OF DISCUSSION.

Dr. Herbert Donnell, Waxahachie: The significance of failing vision is so important that it cannot be overstressed. It is interesting to note that in the state of Missouri, trachoma causes one-fourth of all blindness, whereas in St. Louis it causes only 15 per cent. This is, no doubt, because in the city the poorer classes receive earlier diagnosis and treatment, a point to be held in mind in the prevention of blindness from this cause. The increase in optic atrophy as a cause of blindness in St. Louis, suggests that in the city there are probably more cases of syphilis which do not get the proper amount of follow-up treatment.

The suggestion that glaucoma is dependent upon some systemic condition is probably in the right direction. His suggestion that checking the field of vision offers the earliest routine diagnosis is correct, and I think that oculists are taking the fields of vision much more frequently than they did a few years ago. The correction of errors of refraction in these cases is important because, as he says, there is a hypertrophy of the ciliary muscle. This may be the reason why hyperopes are more frequently attacked by glaucoma than are myopes. I think that conservatism in the exenteration of the ethmoids and sphenoids in optic neuritis is indicated, and that the operation should be done only when other measures have failed. The essayist and I once had a case in which these sinuses were involved. The vision was failing rapidly but the patient finally admitted that he had recently been given several doses of salvarsan. He was fortunate in that his vision returned to normal although the sinuses were not operated on.

I have been able to stop the progress of uveitis in several cases by having roentgenograms made of the gums from which teeth had been removed years before, finding foci of infection, which were then removed. This point has been stressed by Dr. George Mackenzie of Philadelphia, in the treatment of nerve deafness. I wish to thank the essayist for the presentation of an interesting and instructive paper.

Dr. R. H. Needham, Fort Worth: A complaint of failing vision or degrees of blindness is common with malingerers, and they sometimes become very artful in simulating the defect, especially if but one eye is involved. To be sure, the physician can make a complete physical examination and reach his conclusion in that manner, but as far as getting the patient to admit that he sees, or to trap him into an admission of vision, this cannot be done in some cases. The point I wish to make is that, in such cases, one can not ascertain the exact vision. One must base his report on the physical findings. Another question often asked the examiner is the per-

centage loss of vision. This cannot be stated unless the vision of the patient has been previously tested.

Dr. F. J. Slataper, Houston: I think that it is very difficult to state exactly the degree of vision lost because of an injury to the eye when one has no data as to the patient's vision before the injury was received. I consider it a mistake, in such cases, to state the percentage loss in figures. I am aware that insurance companies ask for it, but one should not give it, under such circumstances. The terms should be relative and not too positive.

Dr. H. L. Hilgartner, Jr., Austin: Dr. Jones brings up a very important point in regard to optometrists prescribing glasses for failing vision. I feel that the problem is hydraheaded and the solution of it depends on proper education of both the optometrist and the public. As long as supposedly intelligent and educated people consult the optician for failing vision, glasses will be prescribed whether or not they are needed, regardless of the underlying conditions.

Again, Dr. Jones brings out a point of utmost importance, when he mentions that type of patient who is blind in one eye already, and who is unconscious of it until the vision in the good eye becomes impaired. Every internist and physician should test the patient's vision as a part of their routine examination. In this way many visual defects would be detected at an early stage.

In our practice, we have found a large number of patients with serious ocular conditions who react positively to the intradermal tuberculin test, when they are negative to every other test and examination. A great deal has been written on this subject recently by Wilmer, Gay and others. H. L. Hilgartner, Sr., reported a series of these cases at the meeting of the State Medical Association last year. These patients react most remarkably to tuberculin therapy.

Dr. Jones (closing): The problem of detecting malingering is often a difficult one, especially if both eyes are blind. Malingerers rarely simulate bilateral blindness. These patients are placed in a hospital and carefully watched. In all, a retinoscopy is done after the instillation of a mydriatic, proper correction with lenses is applied and they are then told to read. In the case of ignorant persons the the psychic effect of glasses is often wonderful. In detecting malingering when only one eye is involved, we make use of a prism, pencil reading, colored glass and letter tests; then with a heavy plus lens before the good eye, the patient can sometimes be tripped into reading with the bad eye. Some are classed as malingerers when, weeks or months afterward, definite fundus changes become manifest. Sometimes the injury which brings the patient to the specialist is quite trivial, and after a careful examination beginning atrophy or glaucoma may be detected. In many of these diseases the patient usually dates its origin from some slight injury.

TREATMENT OF SECONDARY ANEMIA.

Patients with secondary anemia due to chronic hemorrhage or chronic chlorosis are said by John H. Powers and William P. Murphy, Boston (*Journal A. M. A.*, Feb. 14, 1931), to respond very favorably to treatment with iron in the form of ferrous carbonate. They respond equally well when whole liver is given in conjunction with iron. Liver extract is of no value in the treatment of these types of chronic secondary anemia. The effect of iron or of whole liver is not increased by the simultaneous administration of liver extract.

STRABISMUS, ITS MANAGEMENT AND CORRECTION*

BY

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Strabismus, squint or heterotropia are terms interchangeably and properly used to mean an obvious and decidedly manifest deviation of an eye from its visual axis, which the patient is unable to intentionally overcome. The problem of when to correct an obvious error of muscular imbalance is as old as time, and by some still debatable. In my opinion, as soon as the discovery is made that one eye deviates from the point of fixation of the other, whether this occurrence is occasional, intermittent or constant, is the time to correct this trouble. Delay is hazardous to good vision, to binocular single vision, and ultimately means loss of vision to the affected eye, amblyopia or blindness resulting from disuse.

This condition of muscular imbalance is found in the infant in arms, as well as the senile on the verge of the grave, and among those in every stage of life between these two extremes. By demanding immediate action in this condition, I do not advocate the slashing of muscles in an infant, or the tucking, recession, or sudden and spontaneous transposition of muscle tissue from one scleral position to another during adolescense. On the contrary, I wish to warn against negligence, procrastination and delay in administering treatment.

Treatment is never begun too early. It is often begun too late. Many duties in the treatment of strabismus fall into the hands of the general practitioner. Many parents of children afflicted with squint tell us that a physician advised them years before: First, "That the strabismus would pass away of itself;" second, "that it would be outgrown;" third, "that they must wait, that it is too early for treatment;" fourth, "that operation would make it worse," and so forth.

Quoting from Roemer and Foster, "These are antiquated and crazy theories which cannot be condemned too strongly." The family physician may be the first to detect muscular imbalance in a child or infant, and he should be prepared to advise the parent wisely regarding the possible cause, course, treatment and the end-result of the case at hand. Sickly, debilitated children more quickly demonstrate extrinsic muscular weakness. If treated immediately, regardless of the youthfulness of the patient, the best results will be obtained.

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